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U.S. DEPARTMENT OF AGRICULTURE

# *Growing Camellias*

Home and Garden Bulletin No. 86  
U.S. DEPARTMENT OF AGRICULTURE

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Each year, the U.S. Department of Agriculture receives thousands of requests for information about growing flowers. In an effort to comply with these requests efficiently, the Department has prepared a series of publications on the flowers that are most frequently the subject of inquiry. This bulletin is one of the series.



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# Growing Camellias

Prepared by Crops Research Division, Agricultural Research Service

Camellias bloom when few other plants do—in late fall, winter, and early spring. These evergreen shrubs will grow and bloom in light shade.

Though camellias are primarily plants of the Deep South, their area of adaptation extends as far north as Long Island, N.Y. In general, camellias can withstand winter temperatures as low as 10° F. You can grow camellias anywhere if you can protect them from temperatures lower than 10° and keep their roots from freezing.

Like most other shrubs that grow in shade, camellias are shallow rooted. They grow best in loose, fertile soil that is slightly acid. They will not tolerate poor drainage.

## KINDS OF CAMELLIAS

Three species of camellias are in general cultivation in the United States—

*Camellia japonica*, *Camellia sasanqua*, and *Camellia reticulata*. Varieties of these species have flowers that are red, pink, or white, or combinations of these colors.

*Camellia japonica* is the hardiest of the three species. It is the best species for planting along the Atlantic coast north of the District of Columbia. This species has glossy leaves. It blooms from late winter through spring.

*Camellia sasanqua* is almost as hardy as *C. japonica*; its northern limit of hardiness along the Atlantic coast is the District of Columbia. *C. sasanqua* also has glossy leaves. It blooms in October and November.

The tenderest of the camellias commonly grown in the United States is *Camellia reticulata*. It can be grown outdoors in southern California, but in other areas it needs indoor protection during the winter. This species has dull-green leaves. It blooms in spring.



Camellias grow best where they have alternating sunshine and shade in summer, complete shade in winter, and protection from winter wind.

## BUYING PLANTS

Before buying plants, be sure you know which varieties are adapted to your area. For a list of varieties that are adapted to your area, write to U.S. National Arboretum, USDA, Washington, D.C., 20250. Nurserymen and members of local garden clubs or camellia societies can tell you which of the adapted varieties are available in your area.

Most nurseries offering camellias for local sale sell them planted in a container or with a burlap-wrapped ball of soil around the roots. Most mail-order nurseries sell camellias bare rooted, to save shipping charges. Buy container-grown or balled-and-burlapped plants if you can; they are easier to establish successfully than are bare-rooted plants.

Buy plants that are at least 2 years old; plants of this age are 18 to 24 inches tall.

Be sure they are healthy. Inspect plants for wounds or scars near the base of the main stem. Wounded areas may become cankerous and cause the plant to die. Note: Grafted plants may have a swollen area near the base of the main stem; this is not a sign of poor health.

If you are selecting plants from a group, select plants that are well branched from the ground up. Choose those that have the best shape and the freshest, greenest foliage. If you select the plants with the greatest number of healthy leaves, you probably will get those with the best root systems.

Do not be misled by the size of the containers. A vigorous plant growing in a gallon can is better than a poor



plant in a 5-gallon can; the vigorous plant will probably outgrow the poor one in a single season.

## PLANTING

In general, fall is the best time for planting camellias. However, in Virginia, Maryland, and States to the north, spring planting is best.

### Planting Site

Try to select a planting site that provides alternating sunshine and shade in summer, complete shade in winter, and protection from winter winds. A planting site under tall pine trees or on the north side of a building can provide these conditions.

### Planting Distance

Mature camellias spread to 8 or 10 feet in diameter. To allow for future growth without crowding, set plants at least 3 feet away from buildings. When using them as hedge plants, set camellias 5 to 7 feet apart; this will provide a compact hedge when the plants are fully grown.

### Setting Plants

If your soil is well drained, dig planting holes for your camellias. If your soil is heavy and poorly drained, set the plants in mounds.

### Planting Holes

Dig planting holes about twice the width and depth of the rootball. Refill the hole slightly more than half full with good soil. Tamp the soil to provide a firm base for the plant.

If the roots of the plant are balled and burlapped, you need not remove the burlap before setting the plant in the hole. After the plant is set, you can cut the twine around the top of the rootball and fold back or cut off exposed parts of the burlap.

If the plant is in a container, cut away the side of the container with metal shears and remove the rootball carefully. Do not knock the rootball from the can; you are likely to injure the roots if you do.

Place the plant in the hole and pack soil under the rootball until the plant sits slightly higher than it grew in the container or nursery soil. Then refill the rest of the hole with a mixture consisting of equal parts soil and organic matter—peat moss, weathered sawdust, or muck from fresh-water ponds. Press the soil firmly around the rootball and water thoroughly.

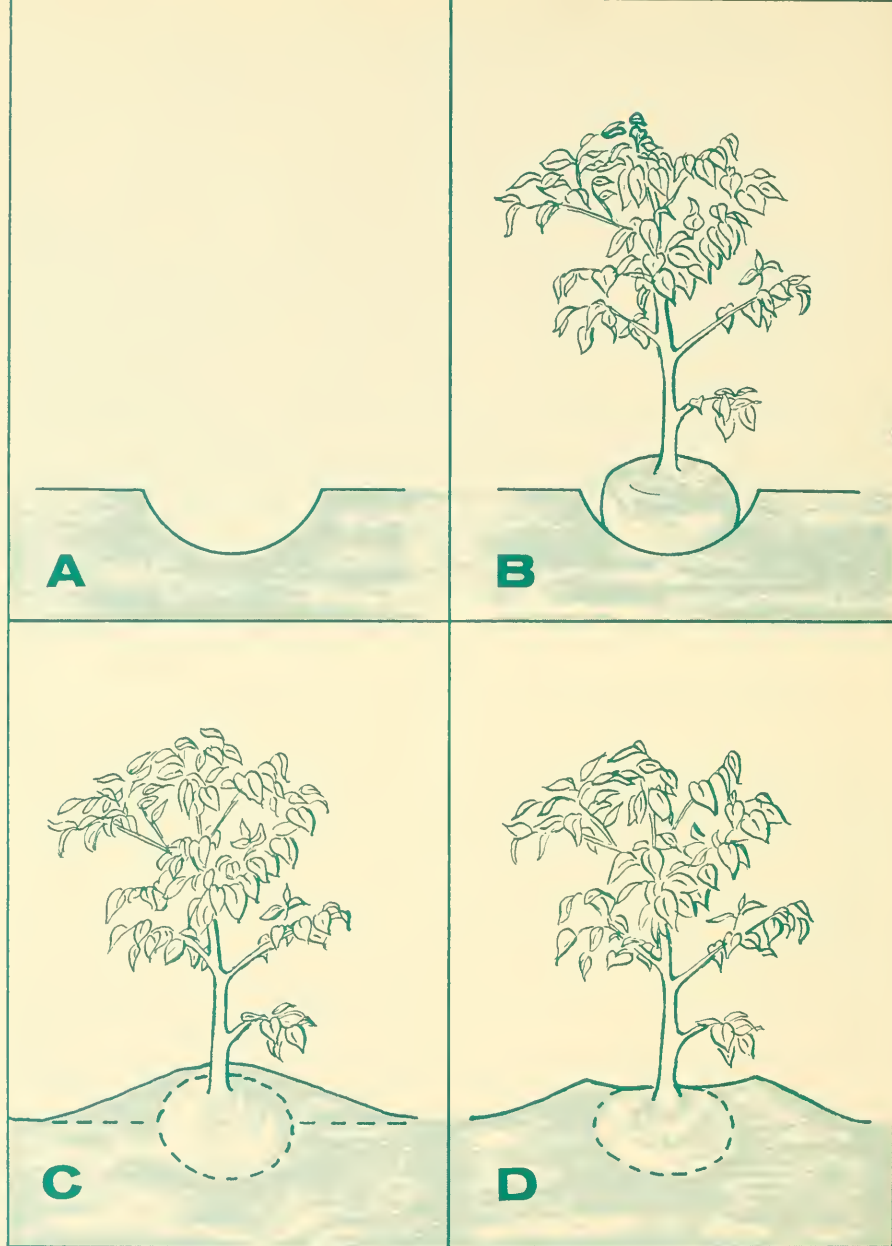
After the plant has settled, its depth should be the same as it was before transplanting. Avoid planting too deep; this is the most common cause of plant failure.

### Mounds

If you are setting the plant in a mound, first dig a hole in the soil about one-fourth to one-half the depth of the rootball and the same diameter as the rootball. Set the plant in the hole and build a mound around it with a half-and-half mixture of topsoil and peat moss.

Cover the rootball with soil mixture to a height several inches above the original soil level of the plant. Slope the soil away from the plant so it extends 2 to 3 feet from the rootball.

Then scoop the loose soil away from the base of the main stem to form a



### MOUND PLANTING

- A. Dig a hole the same diameter as the rootball and about one-half its depth.
- B. Set the rootball in the hole.
- C. Cover the rootball with a mixture of soil and organic matter; slope the soil away from the plant.
- D. Form a basin around the stem for watering, and water thoroughly to settle the soil.

basin for holding water. Fill the basin with water and soak the mound thoroughly to settle the soil around the plant's roots.

## CARE

### Mulching

Apply a mulch after planting and maintain it continuously. Mulching reduces fluctuations in soil temperatures, conserves soil moisture, and helps to prevent weeds from growing.

For mulching material use granulated peat, pine needles, or weathered sawdust; apply it 2 to 3 inches deep over the root zone. Oak leaves, forest debris, bagasse, and other similar coarse materials also are satisfactory if kept at a depth of 2 to 4 inches.

### Watering

Normal rainfall ordinarily provides enough moisture for mulched camellias. During droughts, however, the plants should be watered at weekly intervals. When you water, soak the ground thoroughly.

### Fertilizing

Camellias may need light fertilizing during the first growing season. Apply in spring when the plants are beginning growth.

After the first growing season, organic matter usually furnishes enough nutrients to the plants. If the plants are making 6 to 8 inches of new growth a year, no fertilizer is needed. Overfertilizing—a common practice—promotes loose, open growth that spoils the compact habit of the plant. Overfertilizing

also increases the susceptibility of the plants to winter injury.

If fertilizer is needed, broadcast cottonseed meal over the root area at a rate of 8 to 16 ounces per plant. Or use a fertilizer formulated especially for camellias. These special formulations are available at garden-supply stores. Apply them according to the directions on the package.

Do not fertilize after July 1.

Do not use lawn fertilizers on camellias; these fertilizers are often alkaline.

### Adjusting Soil Acidity

Camellias grow best in acid soil. The soils in most areas where camellias can be grown are acid enough for good growth. In some areas, however, the soil is too alkaline, and acid must be added.

If the soil is not acid enough for camellias, the leaves turn yellow and the plant grows slowly, even though it has been adequately fertilized and watered. Your county agricultural agent can arrange to have your soil tested.

To increase acidity, apply powdered sulfur to the soil. Use 1 pound of sulfur per 100 square feet in sandy or loamy soils or 2 pounds per 100 square feet in clay soils. Water the sulfur into the soil.

Repeat the application in 1 or 2 months if the plant fails to regain its normal color and growth.

### Pruning

Camellias grow well without pruning. You may want to prune your plants, however, to remove dead, injured, or diseased branches, or to reduce the size of the plants.

The best time to prune is after the plants have bloomed. Make pruning cuts back to a bud or a larger branch.

Treat pruning wounds larger than one-half inch in diameter with a tree-wound dressing to prevent harmful fungi from invading the branches.

## Weeding

Pull weeds out by hand. Do not use hoes or other tools; they may injure the surface roots of the plants.

## Transplanting

Transplant camellias when they are dormant. In North Carolina and States to the south, move the plants in fall,

winter, or spring. In States to the north, move them only in the spring.

Dig a good-sized ball of earth to protect the roots from drying. Dig a ball about 13 inches in diameter for a 2- to 3-foot plant. Add 2 inches to the diameter for each foot of height greater than 2 to 3 feet. Make the depth of the ball about three-fourths of its diameter—9 or 10 inches for a 13-inch ball, 10 to 12 inches for a 15-inch ball.

Follow instructions on page 5 for replanting the camellia.

Camellias can be moved in warm weather but at greater risk than when the plants are dormant. If you move them in warm weather and the plants wilt, spray the leaves with water several times a day.

## PREVENTING WINTER INJURY

The first step in preventing winter injury to camellias is selection of varieties that are adapted to your area. The second step is selection of a planting site that protects plants from winter sun and wind.

Even after you have selected a hardy variety and have planted it in a favorable location, your plants may be winter injured by sudden cold weather or by soil freezing.

Though camellias are hardy to 10° when they are dormant, a sudden drop to below-freezing temperatures after warm fall weather may injure new growth and buds. If a sudden cold snap is forecast after warm weather, you can protect your camellias to some extent by covering them at night with cloth, plastic, or paper tents. Support the covering above the plants so it does not touch the plants. Remove the cov-



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Container-grown camellias can be transplanted in the garden or can be grown as potted plants.



ering materials as soon as the weather warms to normal.

When the soil freezes, leaves and stems of the camellia cannot get water from the roots and the top of the plant may become dehydrated. However, if you maintain a good mulch on the soil surface, it will keep the soil from freezing too deeply.

## POTTED PLANTS

Camellias can be grown in containers indefinitely if they are given the proper care. Their requirements are essentially the same as for plants grown outdoors—partial shade, adequate moisture, rich soil, and good drainage.

If the plant you buy from the nursery is container grown, you need not transplant it unless you want a more attractive container. Nursery plants usually are potted in good soil. If your plant outgrows its container, you can transplant it at any time of the year.

Use a potting soil made of one-fourth woods mold, one-fourth sand, and one-half peat moss. Place a 1-inch layer of gravel at the bottom of the new container to provide drainage.

Water the plants heavily, then allow the soil to dry moderately before watering again. The critical period in watering occurs in spring when the plants are growing rapidly. They need much more water then than at any other time of the year.

During the hot summer months, spray the leaves with water every afternoon. Spraying keeps the air humid around the plants.

Fertilize potted plants monthly throughout the year. For monthly feedings from March through July, use a

liquid fertilizer, analysis 15-5-5. In August through February use a 7-6-19 liquid fertilizer. Do not overfertilize; it is better to feed too little than too much. Never fertilize a dry plant.

Potted camellias may be pruned any time of the year to control their size and maintain their shape. When cutting a bloom, take two or three leaves with it. This will help to maintain the shape of the plant.

You may want to disbud your plant to obtain large specimen blooms. The best time to disbud is when you are able to distinguish the flower bud from the growth bud. For early blooming varieties this may be as early as mid-summer. For mid- or late-blooming varieties, disbudding is best done in September or October.

To disbud, use a large pin or a shingle nail to pierce a hole from the tip of the bud downward. This allows air to enter the bud so it will dry and fall off naturally, thus eliminating possible injury to the adjoining bud that you want to keep.

In some parts of southern California, southern Texas, and Florida, potted camellias can be left outdoors all winter. In other areas it is best to move them in winter to some place where their roots will be protected from freezing.

They can be taken indoors and will bloom there if the room temperatures can be kept between 35° and 50° and the humidity held reasonably high.

## DISEASES

Inspect your plants frequently for the signs of camellia diseases described below. Treat these diseases promptly.



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The shriveled leaves on the right are affected with die-back. The diseased branch should be cut off and burned.

### Die-Back

New growth dies; cankers form at base of affected stems. Cut off diseased stems below the cankers and burn them. If pruning wounds are over one-half inch in diameter, treat with tree-wound dressing.

### Flower Blight

Small dark spots appear on flowers and later merge. Affected flowers are quickly destroyed. For control recommendations, consult your county agricultural agent or your State agricultural experiment station.

### Leaf Gall

New leaf tissues swell; whitish fleshy galls form on leaves in summer. Cut off and burn affected twigs.

### Leaf Scorch

Leaves appear scorched. May be caused by cold weather, too much sun, lack of water, lack of fertilizer, too much fertilizer, or deep planting.

Any of the above conditions may also cause camellias to fail to bloom. Consistent failure of plants to bloom, how-

ever, usually indicates that the variety is unsuitable for the area.

## INSECTS <sup>1</sup>

Camellias may be severely damaged by insects unless they are protected by prompt application of insecticides. No one insecticide will control all pests of camellias. To select an effective insecticide you must first identify the insect or its characteristic plant injuries. Recommended insecticides are available at garden-supply stores. Follow label directions for dilution and care in handling.

*Warning:* Never use DDT on camellias; it injures certain varieties.

### Scales

The leaves or bark of camellias frequently become encrusted with hard-shelled insects known as scales. The insects feed on plant juices and cause injury or death to the plant.

The most common species of scales found on camellias are tea scale, peony scale, and Florida wax scale.

#### *Description*

The young insects of all species are tiny, flat, and yellow; they can be seen crawling on leaves in summer.

Some characteristics of the adult scales are as follows:

*Tea scale.*—Brownish shell, about  $\frac{1}{16}$  inch long. Causes yellow blotches on upperleaf surfaces; infested leaves drop off prematurely.

*Peony scale.*—Grayish brown; grows to about  $\frac{1}{10}$  inch long. Burrows beneath bark of twigs and stems and feeds on plant juices; infested areas swell, later sink; smaller stems die quickly. Produces one generation of young a season; other species, several generations.

<sup>1</sup> Prepared by Entomology Research Division, Agricultural Research Service.

*Florida wax scale*.—Reddish-brown body with thick, white or slightly pink waxy coating. Grows to about 1/10 inch long. Causes stunting or dying of plants.

### **Control**

Spray infested plants with summer-oil emulsion in early spring, before plant growth starts. Use 5 tablespoons of summer-oil emulsion in 1 gallon of water for tea scale. Use 10 tablespoons of summer-oil emulsion in a gallon of water for peony and Florida wax scales.

To kill young crawlers of all species, spray leaves and twigs with malathion or dimethoate. Spray when crawlers are first observed—in May, June, or July. Apply spray three or more times at 10- to 15-day intervals.

## **Whiteflies**

Adult whiteflies are very tiny; they have pale-yellow bodies and white-powdered wings. They feed on underleaf surfaces and cause black, sooty deposits on the leaves.

To destroy overwintering young, spray foliage with a summer-oil emulsion in early spring before plant growth starts. Use 5 tablespoons of summer-oil emulsion in 1 gallon of water.

For summer infestation spray with malathion, dimethoate, or lindane. Make two or three applications at weekly intervals. Use either 2 teaspoons of 57-percent malathion emulsifiable concentrate, or 23.4 percent dimethoate emulsifiable concentrate, or 1 teaspoon of 25-percent lindane emulsifiable concentrate per gallon of water.

## **Mealybugs**

Adult mealybugs are oval or elongated about 1/8 inch long, with a white waxy or mealy covering. Black sooty molds on leaves followed by wilting and dying

of the leaves are signs of infestation by mealybugs.

Mealybugs are usually found in clusters along the veins and undersides of leaves or in crotches of twigs. They secrete a sticky honeydew that attracts ants; the ants feed on the honeydew and spread the mealybugs to other plants.

The first step in controlling mealybugs is to eliminate ants in the garden. Soak the soil with a mixture of 2 level teaspoons of 40-percent chlordane wettable powder per 3 gallons of water for 30 square feet.

The second step is to kill the mealybugs. Spray with malathion or dimethoate as for whiteflies when they are first observed. Spray two or three more times at 10-day intervals.

## **Fuller Rose Beetle**

The fuller rose beetle leaves black excrement on leaves and eats notches in the leaf margins. This pest is common on camellias in the South.

The adult beetle has a brown or grayish body. It is about 3/8 inch long and has a white diagonal stripe across each side.

Spray or dust plants with chlordane or lindane about July 1 and repeat 2 weeks later. Use 2-percent lindane dust or 6-percent chlordane dust; or spray with 1 teaspoon of 25-percent lindane emulsifiable concentrate or 1 1/2 level tablespoons of chlordane wettable powder per gallon of water.

## **Rhabdopterus Beetles**

Several kinds of shiny black or bronze beetles, about 1/4 inch long, eat long narrow holes in the foliage of camellias. These insects feed by night and hide by day. Spray plant with lindane when leaf injury is first observed. Use the same lindane spray as for whiteflies.

## Mites

Speckled leaves that later turn rusty brown are a sign of the southern red mite. This dark-red pest is common on camellias throughout the South. It attacks both upperleaf and lowerleaf surfaces. It lays shiny eggs that resemble red pepper.

Feeding injury starts in April and continues until fall. Injured leaves do not recover, but control measures will prevent injury to new growth.

When injury is noted, spray foliage with dicofol (Kelthane). Use 3 level teaspoons of 18.5-percent dicofol wettable powder or 1 teaspoon of 18.5-percent dicofol emulsifiable concentrate in 1 gallon of water. Repeat spraying in 10 days.

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Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture.

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## PRECAUTIONS

Insecticides used improperly can cause injury to man and animals. Use them only when needed and handle them with care. Follow the directions and heed all precautions on the labels.

Keep insecticides in closed, well-labeled containers in a dry place. Store them where they will not contaminate food or feed, and where children and animals cannot reach them.

When handling an insecticide, wear clean, dry clothing.

Avoid repeated or prolonged contact of insecticides with your skin.

Wear protective clothing and equipment if specified on the container label. Avoid prolonged inhalation of insecticide dusts or mists.

Avoid spilling insecticide concentrate on your skin, and keep it out of your eyes, nose, and mouth. If you spill any on your skin, wash it off immediately with soap and water. If you spill it on your clothing, remove clothing immediately and wash contaminated skin. Launder the clothing before wearing it again.

After handling an insecticide, do not eat, drink, or smoke until you have washed your hands and face. Wash any exposed skin immediately after applying an insecticide.

Avoid drift of insecticide to nearby

wildlife habitats, bee yards, crops, or livestock.

Many insecticides are highly toxic to fish and aquatic animals. Keep insecticides out of all water sources such as ponds, streams, and wells. Do not clean spraying equipment or dump excess spray material near such water.

To protect honey bees and other pollinating insects that are necessary in the production of many crops, apply insecticide, when possible, during hours when the insects are not visiting the plants.

Bury empty insecticide containers at a sanitary land-fill dump, or crush and bury them at least 18 inches deep in a level, isolated place where they will not contaminate water supplies. If you have trash-collection service, thoroughly wrap small containers in several layers of newspapers and place them in the trash can.

After they are mixed with water, methoxychlor, dicofol, and malathion can be used safely without special protective clothing or devices. Before mixing, however, the concentrates require special precautions.

Chlordane, dimethoate, and lindane can be absorbed directly through the skin in harmful quantities. When working with these insecticides in any form, take the same precautions as with concentrates.

